

REMARKS

Claims 1-26 are pending in this application, with claims 5-10 and 17-22 having been withdrawn from consideration as being directed to a non-elected invention. No new matter has been introduced by these amendments.

Entry of this Response is proper under 37 C.F.R. § 1.116 since this Response: (a) places the application in condition for allowance for reasons discussed herein; (b) does not raise any new issue regarding further search and/or consideration since the Response amplifies issues previously discussed throughout prosecution; (c) does not present any additional claims without canceling a corresponding number of finally-rejected claims; and (d) places the application in better form for appeal, should an appeal be necessary. The Response is necessary because it is made in reply to arguments raised in the rejection. Entry of this Response is therefore respectfully requested.

CLAIM REJECTIONS

Claims 1-4, 11-16, and 23-26 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Stinson (U.S. Patent No. 5,891,191). Claims 1-4, 11-16, and 23-26 were also rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Stinson (U.S. Patent No. 5,891,191) in view of JP 2002-363675A (JP '675). Applicants respectfully traverse these rejections.

In view of the remarks set forth below, and the evidence of unexpected results provided in the attached Declaration of Yoshiki Ono under 37 C.F.R. § 1.132, Applicants respectfully request reconsideration and allowance of the pending claims.

The Co-Cr-Mo alloy fine wire of the present invention consists of 26 to 31 weight % of Cr; more than 8 weight % to 16 weight % of Mo; and the remainder of Co and inevitable impurities. The fine wire has a diameter of 200 micrometers or less, and a degree of roundness (minor diameter/major diameter) of lateral cross section of 0.6 or more. The fine wire of the presently-claimed invention has a structure made by injecting the melted Co-Cr-Mo alloy from a nozzle to form a melted alloy jet, and cooling and solidifying the melted alloy jet. According to one embodiment (claim 1), the fine wire has a uniform structure with a concentration ratio of maximum Mo concentration phase with respect to minimum Mo concentration phase of 1.8 or less when Mo concentration is measured at one or more arbitrarily selected cross sections of said fine wire. According to another embodiment (claim 15), the internal structure of the fine wire is composed of either gamma phase (Co base solid solution of face-centered cubic system) or epsilon phase (Co base solid solution of hexagonal close-packed system) only, or both of them only. The present invention provides a Co-Cr-Mo alloy fine wire having superior flexibility, even though the alloy is nickel free and the Mo content is more than 8.0% by weight.

Stinson discloses wires that are substantially homogeneous in component concentration, *i.e.*, have a uniform concentration of Co, Cr, and Mo throughout the wire. See Stinson, col. 5 lines 5-11. Stinson does not disclose or suggest a concentration ratio of a high Mo concentration phase with respect to a low Mo concentration phase of 1.8 or less, as recited in independent claim 1. It is by optimizing the concentration ratio of low Mo concentration phase and high Mo concentration phase that a wire with excellent ductility and processability is obtained. See Specification, paragraphs 14 and 18. Stinson discloses wire that is produced by a different process, *i.e.*, drawing, and the wire disclosed

in Stinson fails to exhibit the solidified structure as set forth in the presently-claimed invention. Stinson fails to disclose a wire produced by a melt spinning method. Therefore, Applicants respectfully submit that the claimed invention is not obvious over Stinson.

Stinson discloses that "[t]he alloy contains at least less than about 2 weight percent of nickel" (see col. 3, lines 42-45) and that "[t]he invention is based on the discovery that contrary to conventional wisdom, certain cobalt-chromium-molybdenum (Co-Cr-Ni) alloys containing less than about five weight percent nickel can be drawn or otherwise formed by cold working into wrought elements such as filaments 12 suitable for stents 10" (see col. 4, lines 11-16). Stinson also discloses that the upper limit on the concentration of Mo is 8.0 weight percent.

JP '675 discloses a Co based alloy containing 6 to 12% of Mo. However, JP '675 fails to remedy the deficiencies of Stinson. Stinson and JP '675, taken alone or in combination, both fail to disclose or suggest optimizing the concentration ratio of low Mo concentration phase and high Mo concentration phase to be 1.8 or less when Mo concentration is measured at one or more arbitrarily selected cross sections of said fine wire, as set forth in claim 1, or that the internal structure of the wire is composed of one or both of gamma and epsilon phases, as set forth in claim 15.

Applicants submit the attached Declaration of Yoshiki Ono under 37 C.F.R. § 1.132, which includes test results that demonstrate the unexpectedly improved properties of the present invention.

The test results are based on fine wires prepared from an alloy having a composition that is 29 weight % Cr, 8-16 weight % Mo, with the remainder being Co and inevitable impurities. As shown in Table 1, when a fine wire has a concentration

ratio of low Mo concentration phase to high Mo concentration phase that is 1.8 or less, the fine wire is beneficially capable of a large degree of bending deformation. As shown in Table 2, when such a fine wire has an internal structure composed of only gamma phase and epsilon phase, the fine wire is beneficially capable of a large degree of bending deformation. Applicants submit that one skilled in the art would not have expected to achieve the beneficially high degree of bending deformation that is possible with the fine wires of the presently-claimed invention based on the disclosures of Stinson and JP '675.

Finally, Applicants wish to point out that "structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where ... the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product." MPEP § 2113, *citing In re Garnero*, 162 U.S.P.Q. 221, 223 (CCPA 1979). Claims 1 and 15 set forth structural features of the claimed fine wire that are distinctive, and distinguish the claimed invention over the cited art. Further, those differences result in unexpectedly improved properties in the finished product, as is shown in the attached Declaration of Yoshiki Ono under 37 C.F.R. § 1.132, in Tests 1 and 2.

Therefore, for at least these reasons, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-4, 11-16 and 23-26 under 35 U.S.C. § 103(a) as obvious in view of Stinson alone, or in combination with JP '675.

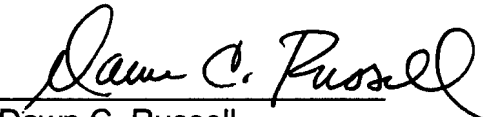
CONCLUSION

In view of the foregoing amendments and remarks, reconsideration of the application, withdrawal of the outstanding rejections, allowance of Claims 1-4, 11-16, and 23-26 and the prompt issuance of a Notice of Allowability are respectfully solicited.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300, making reference to **Attorney Docket No. 108421-00096**.

Respectfully submitted,


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Enclosures: Declaration of Yoshiki Ono under 37 C.F.R. § 1.132
Petition for Extension of Time (two months)